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ESSENTIAL 6

POINTS OF DIFFERENCE

BETWEEN THE

LARYNX OF THE NEGRO

AND THAT OF THE

WHITE MAN.

BY

GEORGE DUNCAN GIBB, M.A., M.D., LL.D., F.G.S.,

MEMBER OF THE ROYAL COLLEGE OF PHYSICIANS OF LONDON;

ASSISTANT-PHYSICIAN AND LECTURER ON FORENSIC MEDICINE WESTMINSTER HOSPITAL;

FELLOW AND MEMBER OF COUNCIL OF THE ANTHROPOLOGICAL SOCIETY OF LONDON;

VICE-PRESIDENT MEDICAL SOCIETY OF LONDON;

MEMBER OF MANY ACADEMIES AND SOCIETIES IN DIFFERENT PARTS OF EUROPE AND NORTH AMERICA.

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I.—*Essential Points of Difference between the Larynx of the Negro and that of the White Man.* By GEORGE DUNCAN GIBB, M.A., M.D., LL.D., F.G.S., F.A.S.L., Member of the Royal College of Physicians, Assistant-Physician and Lecturer on Forensic Medicine, Westminster Hospital, etc.

IN prosecuting some recent researches into the minute anatomy of the human larynx, my observations were extended to an examination of that part of the organism in the Negro. I had already made myself familiar with the elements, entering into the formation of the same part in white people, by the dissection of many hundred larynges, and was therefore prepared to note any deviation that might present itself in the coloured race. In prosecuting this inquiry, no difference was anticipated by me beforehand between the larynx of white and black people; more especially as some years back my dissections had included a considerable number of those from the black race; and at that time whatever peculiarities may have been noticed, they were not then considered of such importance as to attract the attention of scientific men.

The great impulse, however, which has been given to the study of the upper air passages within the last four years, through the revival of the laryngoscope, has led to the most careful scrutiny of every part of the larynx; and peculiarities and deviations that may have been heretofore looked upon as

trivial, or of little moment, now are invested with considerable importance. This has become necessary towards a proper appreciation and better understanding of many obscure and painful diseases of the windpipe.

The larynx of the Negro I have carefully examined, both in the dead and living body, so as to avoid any possible chance of error. The number of my examinations to the present time has been sufficiently large to justify my arrival at certain conclusions, to be confirmed or modified by further experience. In the present communication, the subject of alterations of structure, or minute deviations inaccessible to ordinary vision, are excluded. My remarks shall be confined to alteration of form and redundancy of parts, such as can be observed in the living person, no matter of what colour his skin may be.

When the laryngeal mirror is introduced into the throat of the white man, what does it present to our observation? Firstly, the epiglottis, or cartilaginous valve which covers up the entrance of the windpipe during the act of swallowing, and rests against the back of the tongue; and the valleculæ, or large follicles at its base. The posterior part of the cricoid cartilage is then seen covered with its mucous membrane, upon which are noticed two small and conspicuous bodies,—the arytenoid, or pitcher-shaped cartilages, at the apex or summit of each of which are situated the very small round or horny cartilages, termed the tubercles of Santorini, or cornicula laryngis. The aryteno-epiglottic folds or ligaments now come into view,—a membranous expansion situated between the arytenoid cartilages and the epiglottis, in the centre of which are occasionally but very rarely seen the cartilages of Wrisberg,—cuneiform bodies, with their bases turned upwards and their summits downward. With respect to these cartilages, they are correctly stated by some of the most celebrated anatomists to be altogether rudimentary or absent in the white man, although, as just mentioned, exceptions will arise. In some of my dissections I have not found even a trace of them; and in examining as many as nine hundred living healthy white persons, of various ages and both sexes, I cannot call to mind more than four or five instances where they were

notably visible. Their presence, therefore, is exceptional in the white man.

On either side of the larynx we see the vestibule of the glottis; the superior thyro-arytenoid ligaments, or false vocal cords; the ventricles of Morgagni; and, lastly, the true vocal cords.

These last, namely, the *real vocal cords*, are seen flat and horizontal, of a white colour tinged with a shade of grey. On closure of the glottis, or space between them, the floor formed by their union continues flat and smooth, without any irregularity beyond the almost imperceptible vibrations produced by the efforts at phonation acting on their brilliant pearly, free borders.

The external border of each vocal cord is bounded by the elliptical aperture of the *ventricle of Morgagni*, the floor of which cavity is continuous with the horizontal plane of the vocal cords, with a slight inclination upwards and outwards. It follows, therefore, that the ventricle, or sinus, is situated wholly above the plane of the vocal cords, as presented to our view in the laryngeal mirror, and is, for the most part, placed quite external to the vocal cord, thus preventing our seeing into its interior. This last-named circumstance must not be forgotten. These appearances are shown in the woodcuts, Nos. 1 and 2.

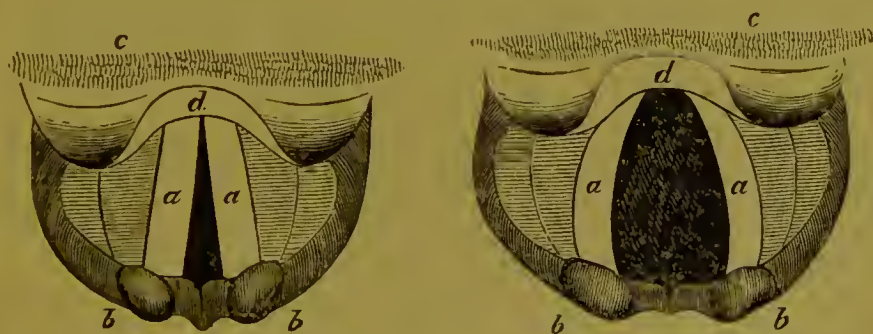


Fig. 1. *a a*. The horizontal and flat vocal cords, bounding a narrow triangular glottis; on the outer side of each cord is seen a narrow opening into the ventricles of the larynx. *b b*. The arytenoid cartilages. *d*. The epiglottis. *c*. Back of the tongue.

Fig. 2. *a a*. The horizontal and flat vocal cords, bounding a lozenge-shaped glottis; on the outer side of each cord is seen the narrow opening into the ventricles, as in fig. 1. *b b*. The arytenoid cartilages. *d*. The epiglottis. *c*. Back of the tongue.

Having said thus much of the white man, we will now inquire, What do we see in the Negro? Unquestionably, the same parts as in his white brother, but with certain deviations in form and superadded parts, which demand our attention.

And firstly, of the cartilages of Wrisberg. These rare bodies in the white are, I may truly say, invariably present in the black race, and stand out as conspicuous objects in the laryngeal mirror, their reflection being readily visible to every experienced eye. They resemble small adipose masses the size of a small pea, and look not unlike a suppurating surface on the point of bursting, situated in the aryteno-epiglottidean fold, midway between the epiglottis and arytenoid cartilage. They are present in the old and young of both sexes; probably more fully developed in the prime of life, although seen tolerably large in the comparatively young, or those who have arrived at the age of puberty. Their constant presence in the Negro, and their frequent absence or rudimentary condition in the white man, prove them to be characteristic of the former; as much so, in all probability, as that the skin is black in the Negro from the presence of a distinct pigment in the rete mucosum, which is absent in the white man.

If no other point of difference between the two races was found than the presence or absence of this small cartilage, it is of itself alone of sufficient significance to distinguish the one from the other.

On extending our comparison further, we shall find that whilst the true vocal cords in the white race possess a horizontal or flat surface, almost in a plane with the general strike of the ventricles,—a characteristic, I may assert, to be never varying, and always constant, unless altered by disease. In the Negro, the plane of the vocal cords is more or less oblique from within outwards; *i. e.*, their internal free border is elevated at a higher angle than their external or attached border, thus giving to each vocal cord a slanting or shelving direction outwards and downwards.

This obliquity of the cords *varies in degree and extent*, but can be generally distinguished; the contrast, however, is striking between the flat horizontal surface and the oblique,

and this is to be seen especially where the point of origin of the two cords is long, as represented in woodcut, No. 3.

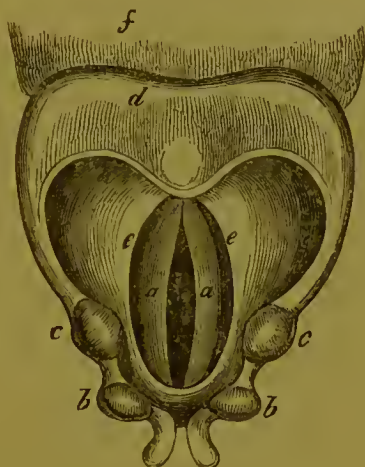


Fig. 3. The larynx of the Negro. *a a*. The oblique vocal cords, between which is a lanciform glottis. On each side of the shelving and oblique cords, *e e*, is the long and narrow elliptical opening of the pendent ventricles. *b b*. The arytenoid cartilages. *c c*. The cartilages of Wrisberg, absent in figs. 1 and 2. *d*. The epiglottis, which is the same in both races. *f*. Back of the tongue.

In the larynx of the white man, we observe the margins of the openings leading into the ventricles which exist on either side, yet immediately above the true vocal cords. The upper margin of one of these openings is placed at a right angle to the plane of the vocal cord, and is generally perpendicular to the outer border of the same vocal cord; whilst the lower margin is at the outer boundary of the cord, unless during the act of retraction of the cord outwards. In other words, the ventricle is situated external to, but immediately above the plane of the true vocal cords.

In the Negro, on the other hand, we observe a long and narrow elliptical opening (see *e*, fig. 3) which leads outwards and downwards right into the ventricle, the whole extent of which, to its very fundus, is visible in *most* black persons. The change of position in the ventricle is here most striking; for it hangs sidewise on the outer side of a shelving vocal cord in such a way that, if the cord were dry and a bead placed on

its slanting surface, it would roll into the little bag or ventricle at its side.

The ventricle of the larynx of the Negro may be compared to the saddle-bags at the sides of a mule, whilst the sloping sides of the saddle would represent the obliquely turned vocal cords, and the summit or pommel, the glottis. The difference in the position of the ventricles in the two races is shown in the two annexed figures.

Figs. 4, 5. Fig. 4 represents a vertical section of the larynx from right to left in the white, and fig. 5, in the black man.

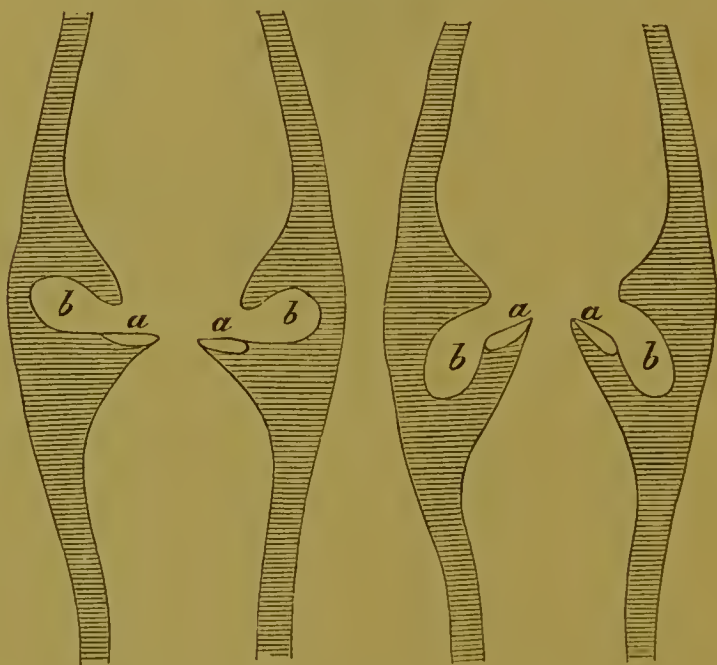


Fig. 4. *a a*. Section of the flat vocal cords. *b b*. Section of the ventricles.

Fig. 5. *a a*. Section of the oblique vocal cords. *b b*. Section of the pendent ventricles.

As the ventricles in both races are formed or surrounded by the thyro-arytenoid muscles on their inferior, exterior, and superior sides, the relative position of these muscles must necessarily be altered in the two races. This might be inferred by a reference to the annexed figure 6 (after Luschka), showing a section through these muscles and the ventricles near the point of origin of the true vocal cords in the white

man. A reference to figure 5 will readily explain what the alteration would be.

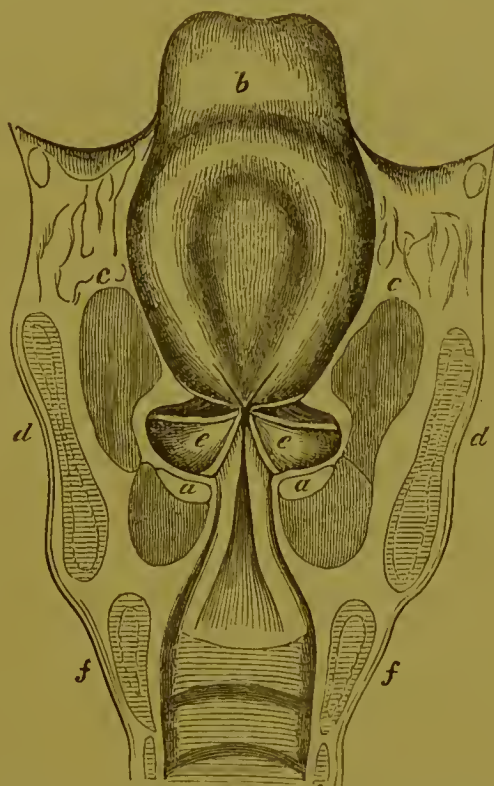


Fig. 6. *a a*. Section of the flat and horizontal vocal cords, above which are the ventricles *e e*. *b*. The epiglottis. *c c*. Section of the thyro-arytenoid muscles, the position of which must necessarily be altered in the Negro. *d d*. Section through the alæ of the thyroid cartilage; and *f f* of the cricoid cartilage.

There are still some other and minuter points of difference in the Negro larynx, but they shall be excluded here, contenting myself with the description already given of the more striking and positive deviations of form and position. These, then, as just described, are three in number, viz. :—

The invariable presence of the cartilages of Wrisberg.

The oblique or shelving position of the true vocal cords.

And the pendent position of the ventricles of Morgagni.

Anyone familiar with the dissection or examination of the larynx in ourselves, cannot but perceive that these peculiarities are not observable, unless we will admit the occasional presence of the first in certain windpipes. Now, we may be told

by some anatomists that they have commonly seen these Wrisbergian bodies, and that they are not rare ; but that sort of evidence counts for very little. A really good anatomist in London lately told me that he had turned up these cartilages every now and then, and had pointed them out to his pupils. I submitted half-a-dozen specimens of the larynx to him for examination, and he told me that all, without exception, possessed the cartilages of Wrisberg ; and I found that he had all along been confounding those of Santorini with those of Wrisberg. Many of the first anatomists have confounded the two, or have thought the terms synonymous,—I may cite the names of Cuvier and Wolff among others. On the other hand, their existence in man has been denied by a not less renowned anatomist than Cruveilhier. Can it be surprising, therefore, that mistakes should occur amongst those who have not made these particular parts their special study ?

I will again repeat that these small bodies, the cartilages of Wrisberg, are either very minute and rudimentary, or wholly wanting in the white race ; whilst they are large and well developed, and almost always present, in the black or coloured races. It may be mentioned, also, that I have dissected them in monkeys, in whom, even the smallest species, they are relatively large in comparison to the size of their bodies ; and with the object of attracting attention to them in the quadrumana, I exhibited specimens before the Pathological Society of London in March 1861, nearly four years ago.

Those who argue that the black race are inferior to the white, and approach the quadrumana in some of their features, would naturally lay hold of what I have stated to prove the truth of this theory, especially as regards the Wrisbergian cartilages and the position of the ventricles. But I take the opportunity of declaring at once, that whatever views may be entertained by anthropologists respecting the position in the scale of beings occupied by black and white, they are discarded from this communication. I simply bring forward certain facts regardless of any theory, having no special object to serve beyond that of promoting truth, and increasing our knowledge of the anatomy of a part of the body heretofore

inaccessible to vision in the living, but now so readily seen that anyone with reasonable dexterity can investigate them for himself.

I have prepared, in a tabular form, all my recent examinations of black people, with the dates, country,—as near as could be made out,—and other little points of interest. The number examined has been fifty-nine; and in all those in whom the *inspection was accomplished without obstruction*, the *main features* or peculiarities already described were visible. They were mostly made in the presence of third parties, who recognised especially the cartilages referred to, and who were greatly struck with the singular appearance they presented. I am not unprepared with evidence of a more positive character; for in this jar is the larynx of a Negro,* which anyone desirous of doing so can examine for himself.

The question might be asked, whether the larynx of the Negro more closely approximated the same organ in the quadrumana than it did in the white man. Without desiring to touch upon any of the controversial questions appertaining to the Negro, it might be answered in the affirmative, so far as the altered position of the ventricles and presence of the cartilages of Wrisberg relate to this question. But it has been remarked by my friend, Mr. Canton, of the Charing Cross Hospital, that whilst external characters are carefully dwelt upon, not much attention has been paid to the study of internal organs; and he has instanced the peculiarity of the origin of the great vessels from the arch of the aorta in the Negro as especially pointed out by Mr. Nunn, such as exists in the quadrumana. Nevertheless, even these arterial peculiarities are occasionally seen in the white man, although more common and striking in the Negro.

To revert to the table of examinations, it will be noticed that a large proportion were among Negroes from the West Indian Islands; that is to say, twenty-six were natives of that part of the world, and, so far as could be judged by their appearance, colour, and general physique, they were of pure

* This was shown to the society.

African descent. Nineteen were from Africa, chiefly from the western coast, including Sierra Leone, Ashantee, Gold Coast, Gambia, and Senegal. One was from Nubia, another from Abyssinia, and a third from the Cape de Verde Islands. With regard to the last-named, he was a mulatto, probably in the eighth degree, and none of the characteristics of the Negro larynx were observed in him. A dozen were from America, chiefly the southern states, in whom there might have been some mixed blood; but I would not speak positively on that point. The first fifteen in the table were *post mortem* inspections; and of those, made in the earlier years when I was a University pupil, fortunately a few notes made at the time and carefully preserved, enabled me to complete their description. Indeed, the skull of the first black which I ever examined is now exhibited, and it is typical of the race; he was from Ashantee, and I knew him personally for some years; he died of pulmonary phthisis in 1843. As has been already stated, in general terms, what the result of my examinations has been, I shall do no more here than to refer to the table itself for the particular details presented by each black.

It will probably be recollected, that the subject of this paper was brought by me before the zoological section of the British Association at Bath, in September last, and as imperfect notices of it appeared in some of the daily and weekly journals, I received letters from various correspondents relative to my investigations. One only I shall notice here, in justice to the sagacity of the writer, who is Mr. Woolmer, surgeon, 71, Warwick Square, Pimlico, a highly respectable member of my profession. He had held it as a theory for some years, that the great gulf of separation between man and other animals, as well as the lines of distinction between the various races of mankind, should be looked for in the organs of voice rather than in the brain. And in his letter to me he stated, that he was satisfied in his own mind that this theory of his, if worked out by patient research, would elevate me, or anyone else disposed to do so, to a high place amongst physiologists.

In the printed abstract of a lecture which he sent me at the same time, delivered by himself at Halesworth, in Suffolk,

about three years ago, is the following :—“ Opposite measurements, producing similar results, was a sufficient proof to the lecturer’s mind that a distinctness of race ought *not* to be sought for in the skull. *In the opinion of the lecturer it may rather be found in the organs of speech.*”

What Mr. Woolmer’s reasons may be for the adoption of his theory are unknown to me, for he has not stated them in the abstract of his lecture ; but I give him the full benefit of a notice in this place, not that I have in any way sought for evidence to draw a distinction between the races of mankind, as I have already taken occasion to remark. Nor am I prepared at present to enter into the question as to the differences in phonation between the black and white races respectively, from the existing differences in the form of their larynx. But I would state my belief that the black has the power of making a louder bellowing noise than the white man, from some phonetic experiments which I endeavoured to carry out, with the laryngeal mirror in the mouth, during the period of examination. And if I might draw any inference, it would be that vocalisation is less perfect, less sustainable, and more easily weakened, than in the white man.

TABLE OF EXAMINATIONS OF THE LARYNX OF THE NEGRO.

NO.	NAME.	DATE.	PECULIARITIES OBSERVED.		COUNTRY, ETC.
1	Peter Uter.	1843.	Cart. of Wrisberg, obl. vocal cords.	do. pend. ventricles.	Ashantee. I have his skull.
2	.....	do.	do.	do.	West Indies.
3	.....	do.	do.	do.	Ditto.
4	.....	do.	obl. v. c.	pend. vent.	Southern States.
5	.....	1844.	do.	do.	Sierra Leone.
6	.....	do.	pend. vents.	do.	Southern States.
7	.....	1845.	obl. v. c.	pend. vents.	West Coast of Africa.
8	.....	do.	do.	do.	Southern States. Jet black.
9	.....	1846.	do.	do.	Gold Coast. } But long in Southern States.
10	.....	do.	do.	do.	Ditto.
11	.....	do.	pend. vents.	do.	West Indies.
12	.....	1847.	do.	do.	Barbadoes.
13	.....	do.	obl. v. c.	pend. vents.	Gambia.
14	.....	1851.	do.	do.	Southern States.
15	James J—, 32.	Dec. 4, 1863.	Cart. of Wrisberg, obl. v. c., pen. ven.	do.	Barbadoes. Charing Cross Hospital.
16	Lucy, age 13.	Jan. 16, 1864.	do.	do.	Johnobey. Village two days journey from
17	Lizzy, „ 15.	„ „	do.	do.	Sierra Leone = 44 miles.*
18	Thomas Pitt.	„ 18, „	do.	do.	Western Africa.
19	.....	„ 23, „	do.	do.	Jamaica.
20	Henry Booth.	„ 27, „	do.	do.	Ditto.
21	Betsy —	„ 28, „	do.	do.	Barbadoes.
22	John Floyd.	„ 30, „	do.	do.	Southern States.
23	.....	Feb. 2, „	do.	do.	Nubia: from the streets.
24	to 30 were seven	Feb. 17, 1864.	In all these seven, excepting one, the cartilages of Wrisberg were seen very large and prominent, with tendency to obliquity of vocal cords, and the deep lateral or pendent ventricles.		All seven were jet black, and either the genuine Negro, or immediate descendants of; three or four were from various parts of Africa, whilst the remainder were from Antigua, Jamaica, etc., etc.
25	Negroes exa-	On board			
26	mined in the	H. M.			
27	presence of Dr.	Hospital			
28	Ward, Dr. Rooke,	ship,			
29	Mr. Bedford and	Dread-			
30	Dr. Blanchet.	nought.			

31	Jamus Blune.	Feb. 19, 1864.	Wrisberg cart., obl. v. c., pend. vent.	New York.
32	Ship's Cook.	" 25, "	do. do.	West Indies.
33	George Allen.	" 27, "	doubtful, doubtful.	New Orleans.
34	Reuben Polk.	Mar. 1, "	obl. v. c. not seen.	Georgia.
35	John Thompson	" 3, "	do. pend. vent.	United States.
36	William Smith.	" 3, "	do. do.	do. do.
37	.....	" 7, "	not clear.	Ditto.
38	George Grant.	April 3, "	do.	Senegal.
39	James Edmonds.	" 4, "	Small.	Sierra Leone.
40	Charles Wales.	" 11, "	Wrisberg cart., obl. v. c., pend. vent.	West Indies.
41	Henry Jenkins.	" 13, "	do. do.	Southern States.
42	Josh. —	" 13, "	do. do.	West Indies.
43	.....	" 15, "	slight. not seen.	Ditto.
44	Ben. Green.	" 29, "	Wrisberg cart. flat. do.	Barbadoes.
45	John Williams.	May 6, "	do. obl. v. c., pend. vent.	Ditto. } Dark brown, intelligent family sent
46	Mrs. M. Williams	" " "	do. do.	Ditto. } to me.
47	Jonah Williams.	" " "	do. not distinct. not clear.	Ditto.
48	Susan Williams.	" " "	do. do.	Western Africa.
49	.....	Jun. 25, "	Indistinct. do.	Sierra Leone.
50	Henry Curtis.	" 31, "	Wrisberg cart., obl. v. c., pend. vent.	South Carolina.
51	David Peters.	" " "	do. do.	Abyssinia. Jet black; beggar.
52	Weirao.	July 6, "	Not seen.	Antigua.
53	— age 27.	Aug. 17, 1864.	Wrisberg cart., obl. v. c., pend. vent.	
54	Brownish, 32.	" " "	do. do.	
55	G. Symonds, 25.	Sept. 7, 1864.	Wris. cart., v. c. nearly } pend. flat, but not prominent. } vent.	Dominica. Jet black; examined with Mr. Harry Leach, Mr. Bedford, Mr. Smith, and Mr. Theobald Jones. } These four in the Dread-nought.
56	R. Rodgers, 15.	" " "	Wris. cart. slightly vert. pend. vent.	Jamaica.
57	Joseph Ephl.	" " "	do. v. c. indistinct. do.	Antigua.
58	Geo. Currier, 30.	" " "	Not seen. not seen.	C. Verde Is. Mulatto, probably in 8th deg.
59	Henry Poshet.	Dec. "	Wrisberg cart., obl. v. c., pend. vent.	West Indies. A student.

* Mother from Tinneh country; father from Sherbro country.

¶ The italics mean slight in degree.

